National Defence / Défense nationale

1996 Annual Report

Biological and Chemical Defence Review Committee

The Committee

Raymond G. Marusyk (Chairman)
Heather D. Durham
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Canada

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SUMMARY

This report records the 1996 activities of the Biological and Chemical Defence Review Committee (BCDRC). It also indicates the current state of the implementation of the recommendations made in the 1988 Barton Report and the reactions by the Department of National Defence to recommendations contained in previous BCDRC reports.

We have concluded that there are neither indications of covertness within Canada's biological and chemical defence program nor evidence to support the allegation that offense related activities are being conducted either on behalf of Canadian authorities or to comply with any multilateral treaty commitment.

It is our opinion that Canada should retain the capability to conduct a moderate program of defensive research and development to permit military operations under the threat of biological and chemical weapons.

The Committee recommends that:

I. The skills of the present Defence Research Establishment Suffield (DRES) staff be reviewed to ensure that no critical imbalances have been created that might affect productivity, safety or responsiveness.

II. The DRES Safety Manual and Emergency Response Plans be up-dated and tested at least annually.

III. The DRES current agent inventory lists showing the full biological name or chemical name/structure be attached, or found adjacent, to the applicable freezer at all times along with precise storage locations for each agent.

IV. Each agent container maintained by DRES be labelled with the specific and unambiguous agent name or identifier.

V. Assurances be included in all future applicable contracts to ensure that work conducted under the auspices of the Suffield Technical Centre (STC) does not compromise DRES laboratory core competence.

INTRODUCTION

The policy of the government of Canada is to press for global, comprehensive and verifiable treaties to ban all biological and chemical weapons. However, while the threat from such weapons endures, Canada has an obligation to ensure that members of the Canadian Forces (CF) have adequate training and equipment to protect themselves against exposure to chemical and biological agents.

On the other hand, the Canadian public has the right to be assured that Canada's policy of maintaining only a defensive capability in this field is fully respected at all times, and that any research, development and training activities undertaken pose no threat to public safety or the environment.

To facilitate this assurance, the Biological and Chemical Defence Review Committee (BCDRC) was established by the Minister of National Defence. The Committee is mandated to review annually the research, development and training activities in chemical and biological defence undertaken by the Department of National Defence (DND) to ensure that they are defensive in nature and conducted in a professional manner with no threat to public safety or the environment. (BCDRC Responsibilities are in Annex C).

The Committee members' appointments are approved by the Deputy Minister of National Defence and the Chief of the Defence Staff on the recommendation of the Chairman of the Defence Science Advisory Board (DSAB). Nominations for BCDRC membership are solicited by the Chairman DSAB from the Royal Society of Canada, the Canadian Federation of Biological Societies, the Canadian Society of Microbiologists, the Chemical Institute of Canada and the Society of Toxicology of Canada.

The present members are:

Chairman Dr Raymond G Marusyk
Professor emeritus, University of Alberta [Microbiology]

Member Dr Heather D Durham
McGill University [Toxicology]

Member Dr Colin R McArthur
York University [Chemistry]

Commencing in 1990, Annual Reports have been submitted. All have been made available to the public. (See Annex B).

COMMITTEE ACTIVITIES — 1996

Between 05 and 31 May 1996, the following DND Establishments including the associated ranges, laboratories and training facilities were visited:

- National Defence Headquarters with staff briefings from:

  Research and Development Branch
  Deputy Chief of the Defence Staff
  Chief of Health Services

- The Department of Foreign Affairs and International Trade (DFAIT);

- Headquarters Maritime Forces Pacific, Her Majesty's Canadian Ship CALGARY, Canadian Forces Base Esquimalt and Canadian Forces Fleet School Esquimalt with briefings from each on the biological and chemical training being undertaken and facilities available, followed by a crew demonstration;

- Canadian Forces Nuclear, Biological and Chemical (CFNBC) School with briefings on its responsibilities, resources and training;

- Defence and Civil Institute of Environmental Medicine (DCIEM); and

- Defence Research Establishment Suffield (DRES) with briefings on the responsibilities and resources of DRES, the Medical Counter-measures Section, the Detection/Identification Section and the Physical Protection Section including current and future programs.

Reports were presented to the Committee by representatives from four Canadian non-governmental agencies who have biological or chemical research and/or developmental (R&D) contracts with DRES.

While at DRES, the BCDRC held privileged discussions with representatives of the Joint Occupational Safety and Health Committee, the three involved Unions, the Human Research Ethics and Animal Care Committees and the Establishment General Safety Officer. Further, time was made available at DRES to allow any member or groups of members to approach us to discuss matters of concern. These activities provided helpful insights into the program and morale at Suffield.

To enhance our perspective of the concerns of Canadians in Canada's biological and chemical defence activities, a meeting was held at the University of Toronto with representatives of the Science for Peace group, Amnesty International, Ploughshares and the Markland Group.

We reviewed DND's 1996 Biological and Chemical Defence Research and Development Program and determined that it was in accordance with current Canadian Government Policy. The latest versions of the DRES and DCIEM Annual Reports, current R&D contracts and publications lists were examined. In addition, the CRAD Accountability System Document was scrutinized.

Further, Dr Durham is to attend the Nuclear, Biological and Chemical Defence Senior Officers' Course in March 1997.

IMPLEMENTATION OF BARTON REPORT RECOMMENDATIONS

The current implementation status of the Barton Report recommendations was ascertained to be:

GENERAL

1. **In the course of the annual program and budgetary process, the authorizing officer at each level be required to sign a certificate of compliance with Departmental policies.**

   Certificates of Compliance for 1996 were reviewed and found to be in order.

2. **A senior Review Committee be established in association with DSAB.**

   We constitute such a Committee.

3. **"Second opinions" should be obtained from outside sources on some of the potentially controversial test programs.**

   The BCDRC considers that the most effective way to obtain credible second opinions would be to establish external committees and to encourage collaboration through workshop type conferences. When selecting such committees, stress should be placed on scientific competence and geographic breadth of designated personnel. Nominations should be made by impartial third parties such as scientific, engineering or other scholarly societies.

4. **A document be prepared annually which would set out the nature of the research and development work under way, the number of people involved, and allocated funding.**

   The 1990/91 Chief Research and Development (CRAD) Review was published in February 1992. The 1991/92 Review was published in January 1994. The 1992/93 and 1993/94 CRAD Reviews are currently under production.

5. **A layman's pamphlet be published which would help improve public understanding about Biological and Chemical Defence (BCD).**

   An appropriate Departmental pamphlet was published in August 1990. A similar pamphlet entitled "Meeting the Challenge - Research and Development in Defence Sciences and Technologies", emphasizing the work at DRES, was published in April 1993.

6. **A DND directive on policies and procedures regarding the use of volunteers and animals be published.**
   DND Policy - Animal Use in R&D was issued on 15 June 1989.

   Defence Administrative Orders and Directives 5061-0 and 5061-1, Use of Volunteers as Human Subjects of Research, are to be promulgated in May 1997.

DRES

1. **A procedure be established to ensure that the DRES Safety Manual is reviewed at prescribed regular intervals of not more than three years. Safety drills should also be conducted at prescribed regular intervals.**

   An appropriate procedure has been established. Safety drills have been conducted as recommended. A new safety plan, which will comply with the recommendations of the 1992 environmental audit, is in the final stages of development.

2. **An automatic annual review and certification procedure be instituted to confirm that stocks of toxic agents are being kept to the minimum level necessary for the conduct of an efficient research and development program.**

   The annual inventory audit was completed in January 1996 and reviewed by the BCDRC in May 1996. We agreed that stocks were being properly maintained at a minimum level which in most cases is only a fraction of the authorized levels.

3. **The arrangements being implemented to improve security and access controls be expedited.**

   Completed.

4. **Pending the destruction of the excess agent stocks now stored in the Experimental Proving Ground, the adequacy of existing physical security arrangements be reviewed with a view to strengthening them.**

   Completed.

5. **The incinerator which is to be acquired for the program be considered for use in the destruction of other dangerous industrial chemicals, including PCBs.**

   The Alberta Provincial Government legislated this recommendation unimplementable. The incinerator was sold and its removal from DRES was completed by 6 August 1992.

6. **The Experimental Proving Ground (EPG) operation and maintenance be given "project" status within the CRAD program.**

   Implemented. Thus positive visibility is given to all activities, funding and personnel involved in the EPG and ensures an annual review as a separate program component.

7. **The scope of the safety and environmental requirements governing outdoor testing at DRES be determined by the provisions of the Canadian Environmental Protection Act.**

Although the present Act does not include such express provisions, the Federal Minister of Environment has said that the department will develop the requisite guidelines as and when necessary. In addition, a staff control system is in place and functioning to ensure compliance with all constraints.

8. **A full environmental audit of DRES be commissioned as soon as possible and that it be repeated at regular intervals of, say, five years.**

Acres Consultants Ltd, having completed the audit under a Supply and Services Canada contract, submitted their final report in February 1992. An internal staff agency has been situated to initiate recommendation compliance. All the Report's recommendations have been addressed and full compliance is anticipated. The Acres' report has been deposited with the Canada Institute for Scientific and Technical Information (CISTI), the National Library and major university libraries throughout the country. The follow-on audit is scheduled for this year. The BCDRC will review progress annually.

DREO

As the entire Defence Research Establishment Ottawa (DREO) chemical agent inventory has been destroyed, all storage and handling facilities removed, laboratories dismantled and the facility decommissioned, the BCDRC will no longer report on DREO activities.

IMPLEMENTATION OF BCDRC REPORT RECOMMENDATIONS

Note: Once a recommendation has been complied with to the satisfaction of the Committee and is so recorded in a Report, it will cease to be included in subsequent Reports.

1. **The flow of information within the Defence Research laboratories between sections, management and staff might be improved — possibly through occasional informal meetings and discussions with senior managers.**

Although there is improvement in awareness levels, monitoring will continue.

2. **Career management procedures should be more closely attuned to the needs of small but extremely important units such as the CFNBC School.**

An improved personnel rotation plan which caters to enhanced continuity appears to have been adopted. Monitoring will continue.

3. **A higher percentage of CFNBC School staff should have scientific backgrounds.**

Notwithstanding progress made to date, we consider this issue to be of sufficient concern to warrant continued monitoring.

4. **Restricted agent training should continue to be conducted annually at DRES for selected military personnel.**

The intended level of compliance with this recommendation has been achieved. Monitoring, based on NDHQ Instruction DCDS 15/93 of 21 July 1993, will continue.

5. **The BCDRC be offered annually a vacancy on DND's Nuclear, Biological and Chemical Defence Senior Officers' Course.**

Agreed. Dr CE Holloway attended the Course in 1992 and arrangements have been made for Drs RG Marusyk and HD Durham to attend in 1996.

6. **An information exchange system be instituted to ensure that applicable CRAD directed research results are readily available to civilian industry.**

Agreed. This will be accomplished by increasing the distribution of CRAD Reports to interested industries, by making the Directorate of Scientific Information Services (DSIS) Data Base readily available to non-governmental agencies, by exploiting the Public Works and Government Services Canada (PWGSC) electronic information system and by DND becoming more pro-active in linkage to university research and product development. The Suffield Technical Centre (STC) when established will be assigned a responsibility for this activity and a "Website" is to be set up. Further, CRAD published the "Research and Development Branch Outline of Program" in April 1996.

7. **CRAD invite, through learned societies, a number of knowledgeable outside scientists to a workshop to discuss a biological defence research strategy for Canada for the next decade.**

Consideration was given to instituting advisory committees by discipline. However, as a practical solution to the problem of constraints imposed by international agreements has not been found, reliance will be placed on acquiring assistance through consultations with groups such as the Canadian Bacterial Diseases Network and the soon to be established STC. In parallel to this activity a system to enhance DND's investment strategy, which will include workshops by technologies in the Autumn of 1996, is being developed.

8. **An invitation be extended to at least one member of the BCDRC to attend the annual DND NBC Defence Workshop.**

Approved. Commencing in 1993 Committee representatives have been in attendance.

9. **The Annual Agent Inventories Audit Reports be restructured as follows:**

   a. **biological agents used for research purposes are to be identified by complete strain or antigenic designator;**

b. **stocks of biological agents are to be quantified in meaningful terms; ie, infectious titres or colony-forming units per given volume; and**

c. **stocks of biological agents that are clearly not agents of biological warfare should be identified as such with an accompanying statement to the effect that such agents may be found in Public Health, University and Industrial laboratories.**

Approved. This work will be completed when the DRES containment facility has been recommissioned.

10. **DFAIT be requested to present annually to the BCDRC a review of the activities undertaken by Canada to comply with the arms control obligations accepted under the Biological and Toxin Weapons (BTWC) and the Chemical Weapons (CWC) Conventions.**

Approved. Commencing in 1994 annual briefings have been given to the Committee by DFAIT representatives.

11. **The Defence Research Establishment Suffield's (DRES) biological agent holdings be restricted to those micro-organisms that are in frequent use or not readily available from central strain repositories.**

Approved. Compliance will be effected as soon as the DRES containment facility has been recommissioned.

12. **The BCDRC be contractually guaranteed access to all private sector laboratories that become involved in the Biological and/or Chemical Defence Research and Development program either under the prevailing contracting system or through the auspices of the industrial partnership proposal.**

Approved. CRAD to resolve this requirement in conjunction with PWGSC.

13. **The authorized maximum quantities of chemical agent stocks at DRES be reviewed.**

Approved. The appropriate action will be initiated by CRAD.

14. **An invitation be extended to at least one member of the BCDRC to attend major Biological and Chemical Defence activities such as Exercises Klaxon Kounter and Krypton Encounter.**

Approved. J3 NBC will arrange.

15. **For research purposes, vaccine strains of bioagents in lieu of pathogenic strains should be used whenever possible.**

Approved. This project will be initiated when the DRES containment facility has been recommissioned.

16. **Consideration should be given to identifying fundamental research which would both maintain a level of basic research with direct applicability to biological and chemical defence and also have applications outside the defence sphere.**

Agreed. Latest research contracts with Universities and Industry are based on these dual requirements. Monitoring will continue.

17. **The Canadian Forces Publication 316 series and associated supporting documents be rewritten to reflect the current threat and in-service equipment.**

Rewrite has commenced under contract, monitoring will continue.

18. **The CFNBC School Training Library collection be reviewed and dated reference material be replaced. Additionally, the ability to access information servers, eg; Internet or World Wide Web, be provided.**

Agreed. Monitoring will continue.

19. **Consideration should be given to authorizing CRAD to publish on a biennial basis the annual review document called up by Recommendation IV of the Barton Report.**

Agreed. Next review document will be published in 1997.

SOME IMPORTANT ISSUES

Concerned Citizens Groups.

The BCDRC met with representatives of the University of Toronto Chapter of Science for Peace, Ploughshares, Amnesty International and the Markland Group. The primary concerns of these Canadians warrant comment. Based on our research and discussions with Departmental personnel, we offer the following:

a. **Concern:** There continues to be a lack of legislation in Canada pertaining to offensive biological and chemical weapons development and the CWC.

Comment: DFAIT has established the Canadian National Authority for the Implementation of the CWC. The requisite implementing Act was proclaimed in July 1995.

b. **Concern:** How do interested persons differentiate with unequivocal confidence between offensive and defensive research.

Comment: In general, the Committee believes that it is neither possible nor profitable to try to rigorously define the scope of these activities. However, offensive and defensive biological and chemical research can be at least partially defined in terms of the quantities involved, the activities in progress and the general intent.

Quantities are more easily defined with chemical agents since defensive activities, such as equipment testing and decontamination drills involve only small amounts of agent, well within the limits proscribed by the provisions of the CWC. Equally, precursor chemicals should correspond on a chemical equivalence (or molar) basis with the actual agent. These quantities should be traceable from source to end agent provided that trading and shipping procedures are kept under scrutiny. Biological agents are more difficult to quantify, per se, since large amounts can be grown from a small viable colony. However, even then materials such as growth media, and sometimes specific pieces of equipment, are necessary and should be traceable and accountable.

Activities can be subdivided into development of new or modified agents, testing procedures and training protocols. In either chemical or biological research it would be reasonable to consider deliberate attempts to enhance persistence, virulence or toxicity, or to circumvent existing defense procedures, as offensive in nature. In testing, one could differentiate between testing the agent for the properties suggested above, and testing the defensive equipment against known or suspected agents. The former should raise suspicions of offensive activity unless justified in relation to defensive capability. The latter should be part of any responsible defensive activity. Similarly, training to deliver chemical or biological agents is clearly offensive while training to protect against or neutralize such agents is a necessary part of a defensive posture.

Intent is the least fathomable aspect. It relies heavily on interpersonal contact and interaction, and progress in confidence building measures. This point has also been outlined in the paper by Dr. David L Huxsoll of Louisiana State University, printed in Volume 666 of the Annals of the New York Academy of Sciences [The Microbiologist and Biological Defense Research: Ethics, Politics and International Security] dated 31 December 1992] to which the Committee referred in the 1994 report.

c. **Concern:** Canada should not only continue to participate in international efforts both to develop and to improve verification methods and technologies but also should increase the activity level in this field.

Comment: Canada's participation in international verification activities will continue. Due to a variety of technical, financial and political factors Canada will phase out the commitment of significant R&D resources to the improvement of verification methods and technologies.

d. **Concern:** Canada has responded inadequately to the commitments specified in the BTWC.
Comment: DND has met completely the reporting requirements as stipulated in the Confidence Building Measures defined by the BTWC. Health Canada has annually coordinated the National reply which in turn has been submitted by DFAIT in accordance with the terms of the BTWC. It is understood that adequate legislation exists to permit Canada to meet Convention obligations.

e. **Concern:** Canadian CWC legislation does not authorize Canadian investigators to independently inspect Canadian industry/laboratories. Why not?

Comment: This category of investigation is not required under the CWC.

f. **Concern:** Do inspections under the Materials Safety Data Sheet inspectors include the parameters of CWC constraints?

Comment: There is no intention to link these two disparate programs under CWC legislation.

g. **Concern:** Schedule 1 of the CWC imposes specific limits on holdings and/or production, Schedules 2 and 3 are not as specific. If further numerical limits are imposed in the future would Canada have to enact new legislation?

Comment: No.

h. **Concern:** Quantities of agents held at DRES are in excess of national requirements.

Comment: The DRES agent inventory is well below authorized quantities. DRES intends to reduce holdings to absolute minimums as soon as the necessary laboratory work can be conducted in the recommissioned containment facility. Once DRES has completed their reduction plan then the Committee will discuss holdings in detail with interested groups.

i. **Concern:** The Canadian "Threat Assessment" is inaccurate and exaggerated hence is not available for public scrutiny.

Comment: It is the opinion of the Committee that the current "Threat Assessment" is accurate and should remain as a fully classified document according to international agreements. Concerned Canadians should be prepared to accept the affirmation offered by the Committee.

COMMENTS

- We would like to express our appreciation for the candidness and cooperation given to us throughout our 1996 visits' schedule.

- Within DND's biological and chemical defence research and development program the quality of science, the projects underway, the resultant publications and the level of safety awareness continue to be of a high standard.
- As DRES's use of vaccine strains of bioagents in lieu of pathogenic strains in the research program increases, a potential public relations benefit is being created for exploitation by DND.

- The impact of achieved staff reductions at DRES demands the continued attention of Senior Management to ensure that

critical imbalances that might affect productivity, safety or responsiveness do not persist.

- The DRES current agent inventory lists showing the full biological name or chemical name/structure, should be attached to the applicable freezer at all times.

- The exact storage location within each of the DRES freezers for each agent should be recorded in the attached Inventory List.

- Each agent container held by DRES should be labelled with the specific agent name (not just by code number).

- The DRES Safety Manual and Emergency Response Plans require up-dating and annual testing of Emergency Response Plans should be re-implemented.

- Significant management attention should be paid to all work conducted under the auspices of the STC to ensure that DRES laboratory core competence is not compromised.

- Although statements describing all existing contracts with outside agencies are open to our review, the continuation of an annual briefing of the BCDRC by a cross-section of selected contractors is deemed to be necessary in order to provide us with complete confidence in the total program.

- As the CF deploy more frequently and with little warning to the lesser developed areas of the world, due recognition and effort should be given by the research and medical elements of DND to endemic natural biological hazards as well as those biologicals defined as agents.

- Middle East concerns, recent Asian events, the current state of political affairs in Eastern Europe, particularly in view of the apparent smuggling of plutonium and possibly other nuclear, biological and chemical materials, and Canada's involvement in peace restoration and peacekeeping operations in the lesser developed areas of the world all suggest that a discreet R&D program aimed at maintaining state-of-art detection and protection devices should continue. In addition, initial and annual refresher training designed to comply with NDHQ Policy Directive P6/93 of 03 August 1993 should be carried out by all uniformed members of DND.

CONCLUSIONS

- The BCDRC found neither indications of covertness within Canada's biological and chemical program nor evidence to support the allegation that offense related activities were being conducted either on behalf of Canadian authorities or to comply with any multilateral treaty commitment.

- We remain convinced that Canada must retain a modest capability to effect essential defensive research and development to permit the conduct of conventional military and counter terrorist operations under the threat of biological and chemical weapons. We believe that Canada's ability to respond rapidly and effectively to biological and chemical threats, domestically or off-shore, will depend upon the maintenance of core expertise in defence science within DND. It is our opinion that the priority of effort should be accorded to the following projects, which in addition to their obvious military relevance also contribute to treaty monitoring, medical support, pollution control and the handling of toxic wastes:

  a. agent detection and identification;

  b. prophylaxis and therapy for biological agents;

  c. development of less physiologically burdening individual protective clothing with wider geographical and employment specific pertinence;

  d. refinement of procedures to foresee and assess hazards posed by both established and hypothetical chemical and biological agents; and

  e. improved decontaminants.

RECOMMENDATIONS

I. The skills of the present DRES staff be reviewed to ensure that no critical imbalances have been created that might affect productivity, safety or responsiveness.

II. The DRES Safety Manual and Emergency Response Plans be up-dated and tested at least annually.

III. The DRES current agent inventory lists showing the full biological name or chemical name/structure be attached, or found adjacent, to the applicable freezer at all times along with precise storage locations for each agent.

IV. Each agent container maintained by DRES be labelled with the specific and unambiguous agent name or identifier.

V. Assurances be included in all future applicable contracts to ensure that work conducted under the auspices of the Suffield Technical Centre (STC) does not compromise DRES laboratory core competence.

ANNEX A

BIOGRAPHIES OF COMMITTEE MEMBERS

Dr. Raymond G. Marusyk (Chairman)

A graduate in virology from the University of Alberta and the Karolinska Institute in Stockholm, he is now a Professor emeritus at the University of Alberta. He is Past President of the Canadian Society of Microbiologists, a Specialist Microbiologist (Public Health) of the College of Microbiologists and principal of several environmental management companies.

Dr. Heather D. Durham

A graduate in Pharmacology from the University of Western Ontario and the University of Alberta, she is a Professor in the Department of Neurology and Neurosurgery at McGill University and an Associate Member of the Département de médicine du travail et d'hygiène du milieu, Université de Montréal. Among her many appointments and affiliations, she has been a member of the Board of Directors of the Society of Toxicology of Canada and is also a member of the Society for Neuroscience and the Centre Interuniversitaire de Recherche en Toxicologie.

Dr. Colin R. McArthur

A graduate in chemistry from the University of Western Ontario and from the University of Illinois, he is Associate Professor and past Chair, Department of Chemistry at York University. He is a member of the Chemical Institute of Canada, the Canadian Society for Chemistry and the International Union of Pure & Applied Chemistry.

ANNEX B

REFERENCES FOR PREVIOUS REPORTS

- Research Development and Training in Chemical and Biological Defence within the Department of National Defence and the Canadian Forces: A Review by William H. Barton, Minister of Supply and Services Canada, 1989, p.54. [Available in Canada through the Canadian Government Publishing Centre, Supply and Services Canada, Ottawa, Ontario K1A 0S9. Catalogue No. D2-79/1989E, ISBN 0-660-13103-X.]

- First Annual Report of the Biological and Chemical Defence Review Committee, Minister of National Defence, Ottawa, 1991, p.7. It is also included in the second annual Review of the Chemical and Biological Defence Program January 1990 - April 1991, Minister of National Defence, Ottawa, February 1992, p.28. [Both available through National Defence Headquarters Library Services, National Defence Headquarters, MGen GR Pearkes Building, Ottawa, Ontario K1A 0K2.]

- Second Annual Report of the Biological and Chemical Defence Review Committee, is included in the third annual Review of the Chemical and Biological Defence Program May 1991 - March 1992, Minister of National Defence, Ottawa, January 1994, p.26. [Available through National Defence Headquarters Library Services, National Defence Headquarters, MGen GR Pearkes Building, Ottawa, Ontario K1A 0K2.]

- Third Annual Report of the Biological and Chemical Defence Review Committee, is included in the fourth annual Review of the Chemical and Biological Defence Program April 1992 - March 1993, Minister of National Defence, Ottawa, September 1996, p.31. [Available through National Defence Headquarters Library Services, National Defence Headquarters, MGen GR Pearkes Building, Ottawa, Ontario K1A 0K2.]

- 1993 Annual Report of the Biological and Chemical Defence Review Committee, Minister of National Defence, Ottawa, June 1995, p.9. [Available through National Defence Headquarters Library Services, National Defence Headquarters, MGen GR Pearkes Building, Ottawa, Ontario K1A 0K2.]

- 1994 Annual Report of the Biological and Chemical Defence Review Committee, Minister of National Defence, Ottawa, June 1995, p.9. [Available through National Defence Headquarters Library Services, National Defence Headquarters, MGen GR Pearkes Building, Ottawa, Ontario K1A 0K2.]

- 1995 Annual Report of the Biological and Chemical Defence Review Committee, Minister of National Defence, Ottawa, February 1996, p.9. [Available through National Defence Headquarters Library Services, National Defence Headquarters, MGen GR Pearkes Building, Ottawa, Ontario K1A 0K2.]

ANNEX C

BIOLOGICAL AND CHEMICAL DEFENCE REVIEW COMMITTEE

RESPONSIBILITIES

GENERAL

1. The Biological and Chemical Defence Review Committee (BCDRC) is to review annually the research, development and training programs in biological and chemical defence undertaken by the Department of National Defence (DND) to ensure that all activities within those programs are, in fact, defensive in nature and are conducted in a professional manner with no threat to public safety or the environment.

EXECUTION

2. The BCDRC will annually:

a. visit:

(1) The Defence Research Establishment Suffield (DRES),

(2) The Defence and Civil Institute of Environmental Medicine (DCIEM);

(3) The Canadian Forces Nuclear, Biological and Chemical (CFNBC) School; and

(4) at least two other DND Establishments where biological and chemical training is conducted;

b. review the annual DND Research and Development Program as originated by the Chief of Research and Development (CRAD) and approved by the Defence Management Committee;

c. review the implementation of the recommendations made in the:

(1) BARTON REPORT of 31 December 1988;

(2) 1992 Independent Environmental Audit of DRES; and

(3) previous BCDRC Reports;

d. examine the DRES and DCIEM Annual Reports, activities and records of the Human Research Ethics and Animal Care Committees and the current research and development contracts and publications lists; and

e. submit a report of their activities and findings to the Chairman, Defence Science Advisory Board (DSAB) who will convey the Report to the Chief of the Defence Staff and the Deputy Minister of National Defence.

COORDINATION

3. The Committee, consisting of a chairperson and two members representing the disciplines of chemistry, microbiology and toxicology, is to be appointed for terms of three years by DND on the recommendation of the Chairman, DSAB.

4. The DSAB will provide the requisite organizational support and will assign an executive officer to the Committee who will attend to all procedural, reporting, coordination and administrative matters as directed by the Committee.